Acute exacerbation of myasthenia gravis with topical imiquimod use

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Imiquimod activates the immune system when applied to a local area. We report a patient with a history of well-controlled myasthenia gravis who was prescribed imiquimod for lentigo maligna. Treatment was halted after 2 weeks when the patient reported itching and irritating sensations in his throat, consistent with previous myasthenia exacerbations. The symptoms improved once imiquimod use was discontinued. We advise clinicians to be cautious when prescribing imiquimod to a patient with a history of myasthenia gravis.

Imiquimod is an immune response modifier used as a topical therapy for a variety of skin conditions, including actinic keratoses, superficial basal cell carcinomas, and viral infections such as condyloma (1). It has several other documented off-label dermatologic uses, including Kaposi's sarcoma, scar management, and lentigo maligna (2). Myasthenia gravis (MG) is an autoimmune disorder that targets acetylcholine receptors at the neuromuscular junction, resulting in varying degrees of muscle weakness (3). Common presenting symptoms of MG include manifestations of ocular muscle weakness (ptosis and diplopia) and bulbar weakness (dysarthria and dysphagia). Bulbar muscle weakness can eventually spread to include the muscles of respiration, leading to life-threatening respiratory collapse. We describe a patient with MG with an exacerbation of his symptoms secondary to topical imiquimod use for a lentigo maligna.

CASE DESCRIPTION

A 72-year-old white man with a history of MG controlled with pyridostigmine and azathioprine presented with a brown patch on his left nasal ala measuring 2.0 cm × 1.5 cm. A biopsy revealed melanoma in situ, lentigo maligna type. Due to the size and location of the lesion, he opted for imiquimod 5% cream applied once daily for 8 to 12 weeks to reduce the lesion's size prior to surgical excision. Following 2 weeks of imiquimod use, the patient reported an itching and irritating sensation in his throat, similar to that of his typical MG exacerbations. The patient discontinued the use of topical imiquimod immediately. Three weeks later, he reported a return to his baseline status with regards to MG symptoms.

DISCUSSION

This case represents the second report of MG exacerbation with topical imiquimod use. Wolfe et al described an 80-year-old woman with MG controlled without medication who was treated with topical imiquimod for multiple squamous cell carcinomas of the legs (4). She experienced a resurgence of her MG symptoms, which included difficulty chewing, mild diplopia, dysphagia, dysphonia, and facial muscle weakness within 1 week of imiquimod initiation. Her symptoms resolved with pyridostigmine use during the course of her imiquimod therapy. In contrast, our patient was already on longstanding immunosuppressive therapy and used imiquimod on a much smaller surface area. Yet, he still experienced an exacerbation of MG symptoms after only 2 weeks of use. Similarly, our patient's symptoms resolved after discontinuation of topical imiquimod.

Although the exact mechanism of action is unknown, imiquimod is a toll-like receptor-7 agonist that triggers activation of the immune system (5). This activation leads to the production of various interleukins, interferon-gamma, and tissue necrosis factor-alpha, all of which contribute to an immune-mediated response (5). The immune response can lead to increased production of immunoglobulins. This immunoglobulin production leads to a chronic autoimmune state, which may present with varying levels of muscle weakness. Based on these findings, and considering the increasing use of topical imiquimod, clinicians should proceed with caution when prescribing topical imiquimod to patients with MG, as the severity of these adverse effects has not been well documented. Patients should be counseled on these possible adverse effects and should discontinue use of the medication immediately if they have any symptomatic manifestations of their disease.

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